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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,747	01/19/2005	Michael Richard Richardson	19942 (XA2021)	8840

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EXAMINER
YU, LIHONG

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/521,747	RICHARDSON, MICHAEL RICHARD
	Examiner	Art Unit
	LIHONG YU	2611

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, filed on October 23, 2008, with respect to the previous office

action, have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims 1, 5, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kwon et al (US 7,359,431 B2) in view of Bousquet et al (US 6,650,906 B1).

Consider claims 1 and 7:

Kwon discloses a method of enhancing signals in a mobile telecommunications system

(*see Kwon at the abstract, where Kwon describes an invention for channel estimation by*

removing correlation noise in a digital communication), the system comprising a base station

and first and second receivers within a reception zone of the base station (*see Kwon at col. 4,*

lines 24-32, where Kwon describes digital communication system between transmitter and

receiver; see Kwon at col. 4, lines 33-39, where Kwon describes a reference signal and a

received signal for the receiver), the method including:

- a) receiving a first plurality of signals at the first receiver (*see Kwon at col. 4, lines*

  33-39, where Kwon describes reference signals are received);

- b) receiving, from the base station, a second plurality of signals at the second receiver

  (*see Kwon at col. 4, lines 33-39, where Kwon describes a PN sequence are received*

  from the transmitter via the channel).

- c) correlating the received signals from both receivers to provide an estimated

  correlation therefor (*see Kwon at col. 4, lines 33-39, where Kwon describes*

  correlation between the PN sequence and the reference signal to obtain a correlation

  function of the PN sequence).

- d) selecting areas from within the estimated correlation (*see Kwon at col. 4, lines 40-*

  43, where Kwon describes applying a threshold to the obtained correlation function);

- e) creating a replica of unwanted signals using said selection and said first plurality of

  signals (*see Kwon at col. 4, lines 40-43, where Kwon describes applying a threshold*

  to the obtained correlation function to estimate a first multi-path, that is the unwanted

  signal); and

- f) enhancing said plurality of second signals by eliminating said replica therefrom

  (*see Kwon at col. 4, lines 44-61, where Kwon describes removing noise included in*

  the correlation function of the received PN sequence by means of the first multi-path

  estimate).

Kwon does not disclose the reference signals above are from the transmitter, and the

communication link between the transmitter and the receiver for the reference signal has a good

quality.

Bousquet teaches reference signals that are sent from a transmitter to a receiver (*see*

Bousquet at the abstract), and the communication link between the transmitter and the receiver

for the reference signal has a good quality (*see Bousquet at col. 4, lines 45-51*).

Consider claims 5 and 11:

Kwon in view of Bousquet discloses the method as shown in claim 1 above. Kwon

further teaches correlating said enhanced second plurality of signals with said first plurality of

signals to produce an enhanced correlation (*see Kwon at col. 4, lines 48-55, where Kwon*

describes a second estimating unit that applies a second threshold to the correlation function of

the received signal in which noise has been removed, that is correlating the enhanced second

plurality of signals, and finally estimates a correlation value).

3.   Claims 2-4, 6, 8-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Kwon et al (US 7,359,431 B2) in view of Bousquet et al (US 6,650,906 B1), as applied to

claim 1 above, and further in view of Anderson et al (US 2003/0017832 A1).

Consider claims 2 and 8:

Kwon in view of Bousquet discloses the method according to claim 1 above. Kwon

further teaches the estimated correlation comprises a correlation of propagation delay (*see Kwon*

at col. 2, lines 4-13, where Kwon describes calculating a correlation value of received signal

having delays).

Kwon does not disclose the estimated correlation comprises a correlation of frequency shift for the received signals.

Anderson teaches an estimated correlation comprises a correlation of frequency shift for the received signals (*see Anderson at para 0344, where Anderson discusses each correlation is associated with an estimated correlation of Frequency Difference Of Arrival, that is, frequency shift*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Kwon, and to have that the estimated correlation comprises correlation of frequency shift for the received signals, as taught by Anderson, thus allowing for improving methods for determining TDOA and FDOA values, as discussed by Anderson (*see Anderson at para. 0016*).

Consider claims 3 and 9:

Kwon in view of Bousquet and Anderson discloses the method as shown in claim 2 above. Kwon further teaches correlating said enhanced second plurality of signals with said first plurality of signals to produce an enhanced correlation (*see Kwon at col. 4, lines 48-55, where Kwon describes a second estimating unit that applies a second threshold to the correlation function of the received signal in which noise has been removed, that is correlating the enhanced second plurality of signals, and finally estimates a correlation value*).

Consider claims 4 and 10:

Kwon in view of Bousquet and Anderson discloses the method as shown in claim 3 above. Kwon further teaches the enhanced correlation comprises a correlation of propagation delay for the enhanced second plurality of signals and the first plurality of signals (*see Kwon at*

col. 2, lines 4-13, where Kwon describes the correlation value of the received signal includes delays).

Kwon does not disclose the enhanced correlation comprises a correlation of frequency shift for the enhanced second plurality of signals and the first plurality of signals.

Anderson teaches a correlation of frequency shift for a second plurality of signals and a first plurality of signals (*see Anderson at paragraphs 0344 and 0247, where Anderson discusses an estimated correlation of Frequency Difference Of Arrival, that is, frequency shift*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Kwon, and to have that the enhanced correlation comprises a correlation of frequency shift for the enhanced second plurality of signals and the first plurality of signals, as taught by Anderson, thus allowing for improving methods for determining TDOA and FDOA values, as discussed by Anderson (*see Anderson at para. 0016*).

Consider claims 6 and 12:

Kwon in view of Bousquet discloses the method as shown in claim 5 above. Kwon further teaches the enhanced correlation comprises a correlation of propagation delay for the enhanced second plurality of signals and the first plurality of signals (*see Kwon at col. 2, lines 4-13, where Kwon describes the correlation value of the received signal includes delays*).

Kwon does not disclose the enhanced correlation comprises a correlation of frequency shift for the enhanced second plurality of signals and the first plurality of signals.

Anderson teaches a correlation of frequency shift for a second plurality of signals and a first plurality of signals (*see Anderson at paragraphs 0344 and 0247, where Anderson discusses an estimated correlation of Frequency Difference Of Arrival, that is, frequency shift*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Kwon, and to have that the enhanced correlation comprises a correlation of frequency shift for the enhanced second plurality of signals and the first plurality of signals, as taught by Anderson, thus allowing for improving methods for determining TDOA and FDOA values, as discussed by Anderson (*see Anderson at para. 0016*).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIHONG YU whose telephone number is (571) 270-5147. The examiner can normally be reached on 8:30 am-7:00 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lihong Yu/
Examiner, Art Unit 2611
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611